CLAIMS

1. A vertical form, fill, and seal machine for manufacturing a flexible reclosable stand-up package having a zipper seal incorporated therein, comprising:

a) a forming tube having an entrance portion above a former section and an exit portion below said former section;

b) a device for dispensing a supply of zipper seal mechanism toward said form, fill, and seal machine, said zipper seal mechanism having first and second interlocking opposing members, wherein said first and second members each include a profile portion which interlocks with a complementary profile portion on said opposing member and a tab portion extending away from said profile portion;

c) a channel formed in a surface of said forming tube and extending along the longitudinal axis of said forming tube from the entrance portion to the exit portion, wherein said channel is proportioned to receive the interlocked profile portions of said zipper seal mechanism;

d) a roller mechanism for splaying the first and second tab portions away from one other so as lie adjacent to an exterior surface of said forming tube;

e) a first heat seal mechanism for sealing a portion of each of the tab portions an to an adjacent surface of a thermoplastic film prior to the former section;

f) a former mechanism for forming said thermoplastic sheet into a tubular shape about said forming tube;

g) a second heat seal mechanism for forming a back seal on said tubular shape of thermoplastic film thereby creating a film tube;

h) an apparatus for imparting a crease in said film tube;

i) an apparatus for forming a space between an inner surface of said tube and said interlocked profile portions of said zipper seal mechanism prior to traversely sealing said tube; and

j) a pair of heat sealing jaws for imparting a traverse seal on said film tube, wherein said sealing jaws include a cutting mechanism for severing said package from said tube.

2. The vertical form, fill, and seal machine of claim 1, wherein said crease inserting apparatus comprises an adjustable, stationary tucker bar capable of being positioned between a first pair of forming plates

3. The vertical form, fill, and seal machine of claim 1, wherein the space forming apparatus comprises a second pair of forming plates situated on opposing sides of said channel formed in a surface of said forming tube, wherein each of said second pair of forming plates includes a first edge, which is parallel to said longitudinal axis of said forming tube, and a second edge which projects away from said longitudinal axis of said forming tube.

4. An improved vertical form, fill, and seal machine having a forming tube, said improvement comprising:

a quick change module capable of being removably attached to and extending below said forming tube, said module comprising;

a channel disposed between a first pair of forming plates, wherein said channel parallels a longitudinal axis of said forming tube, and wherein each of said pair of forming plates includes a first edge, which is parallel to said longitudinal axis of said forming tube, and a second edge which projects away from said longitudinal axis of said forming tube; and

an adjustable, stationary tucker bar capable of being positioned between a second pair of forming plates.

5. The improved vertical form, fill, and seal machine of Claim 4, wherein said first and second pairs of forming plates are situated on opposing sides of said forming tube.

6. The improved vertical form, fill, and seal machine of Claim 4, further comprising a mechanism for blowing a pressurized gas against packaging film formed in a tube around said forming tube and module, wherein said gas is blown against the exterior of said tube of packaging film at points between said second pair of forming plates; wherein said mechanism comprises gas ports in said tucker bar in communication with a pressurized gas source.

7. The improved vertical form, fill, and seal machine of Claim 4, wherein said tucker bar comprises a fluoropolymer.

8. The improved vertical form, fill, and seal machine of Claim 4, wherein said second pair of forming plates comprises hinges, wherein further said hinges allow for said second pair of forming plates to rotate about said hinges towards each other to compensate for the narrowing of a packaging tube during formation of a transverse seal.

9. The improved vertical form, fill, and seal machine of Claim 4, wherein said quick-change module is attachable to said forming tube by inserting tabs that are integral to said forming tube into corresponding holes that are integral to said quick-change module.

10. A method of making a flexible reclosable stand-up package on a vertical form, fill, and seal machine comprising the steps of:

a) feeding a continuous of packaging film having a first and second lateral edge toward said form, fill, and seal machine;

b) dispensing a length of zipper seal mechanism toward said form, fill, and seal machine, wherein said seal mechanism comprises, in opposing and interlocking combination, a first element having a first profile portion and a first tab portion extending away from said first profile portion, and a second element having a second profile portion, which is complementary to and interlocks with said first profile portion, and a second tab portion extending away from said second profile portion;

c) forming said packaging film into a tubular shape about a forming tube of said form, fill, and seal machine, bringing said lateral edges together in an adjacent relationship as said packaging film advances downwardly over said forming tube;

d) feeding said length of zipper seal mechanism longitudinally into a space between said packaging film and said forming tube and in a direction parallel to said forming tube;

e) attaching a portion of said tab portions to said packaging film prior to longitudinally sealing said tubular shape;

f) forming a longitudinal seal in said packaging film by sealing said lateral edges in said adjacent relationship to one another to produce a tube enclosing said zipper seal mechanism;

g) forming a vertical crease in said tube of packaging film prior to traversely sealing said tube;

h) forming a space between an inner surface of said tube and said interlocked profile portions of said zipper seal mechanism prior to traversely sealing said tube;

i) forming a first traverse seal on said tube, wherein said first traverse seal includes a portion of said vertical crease and a portion of said zipper seal mechanism, said first traverse seal sealing all layers of said tube and said crease together, and sealing all layers of said tube and said zipper seal mechanism together;

j) dropping a product into a partially formed package created by steps a) through i);

k) forming a second traverse seal on said tube, wherein said second traverse seal includes a portion of said vertical crease and a portion of said zipper seal mechanism, said second traverse seal sealing all layers of said tube and said crease together, and sealing all layers of said tube and said zipper seal mechanism together; and

l) severing said package from said tube at said second traverse seal.

11. The method of Claim 1, wherein said packaging film has lettering oriented perpendicular to a direction of travel of said film.

12. The method of Claim 11, further comprising:

m) standing up said package on said crease with said lettering oriented upright.

13. The method of Claim 10, wherein the crease of step g) is formed by at least one adjustable, stationary tucker bar positioned between a pair of forming plates.

14. The method of Claim 13, wherein said tucker bar comprises a fluoropolymer.

15. The method of Claim 10, wherein the space of step h) is formed by guiding the interlocked profile portions of said zipper seal mechanism in a direction parallel to said forming tube while projecting the tab portions of said zipper seal mechanism away from said forming tube.

16. A vertical stand-up pouch formed by the method of Claim 10.

17. A method of making flexible reclosable containers from a sheet of thermoplastic film having two lateral edges on a form, fill, and seal machine comprising the steps of:

a) dispensing a length of zipper seal mechanism having first and second interlocking opposing members, wherein said first and second members each include a profile portion which interlocks with a complementary profile portion on said opposing member and a tab portion extending away from said profile portion;

b) feeding said interlocking profile portions of said zipper seal mechanism longitudinally along a longitudinal channel formed in a surface of a forming tube of said form, fill, and seal machine;

c) splaying said tab portions so as to be adjacent with said forming tube surface;

d) feeding a continuous supply of said film toward said forming tube;

e) wrapping said film longitudinally about said forming tube surface and said zipper seal mechanism;

f) sealing a portion each of said tab portions an to an adjacent surface of said film prior;

g) subsequent to step f), forming said thermoplastic film into a tube, said tube having said tab portions sealed to an inner surface and longitudinally disposed thereon and a seam longitudinally disposed thereon, said seam comprising said lateral edges overlapping each other;

h) forming said film into a tube by sealing said two lateral edges in a longitudinal back seal;

i) forming a vertical crease in said tube of packaging film prior to sealing said tube traversely;

j) forming a space between said portion of each said tab portions sealed to said adjacent surface of said film, and said inner surface of said tube disposed therebetween, prior to traversely sealing said tube;

j) forming a first traverse seal on said tube, wherein said first traverse seal includes a portion of said vertical crease and a portion of said zipper seal mechanism, said first traverse seal sealing all layers of said tube and said crease together, and sealing all layers of said tube and said zipper seal mechanism together;

k) dropping a product into a partially formed package created by steps a) through j);

l) forming a second traverse seal on said tube, wherein said second traverse seal includes a portion of said vertical crease and a portion of said zipper seal mechanism, said second traverse seal sealing all layers of said tube and said crease together, and sealing all layers of said tube and said zipper seal mechanism together; and

m) cutting said tube at said second traverse seal, thus forming a flexible stand-up package having a zipper seal mechanism sealed along an interior edge.

18. The method of Claim 17, wherein said thermoplastic film has lettering oriented perpendicular to a direction of travel of said film.

19. The method of Claim 17, wherein the crease of step i) is formed by at least one adjustable, stationary tucker bar positioned between a pair of forming plates.

20. The method of Claim 19, wherein said tucker bar comprises a fluoropolymer.

21. The method of Claim 17, wherein the space of step j) is formed by guiding the interlocked profile portions of said zipper seal mechanism in a direction parallel to said forming tube while projecting the tab portions of said zipper seal mechanism away from said forming tube.

22. A vertical stand-up pouch formed by the method of Claim 17.